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EXAMINER

NGUYEN, HANH N

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/873,115

Applicant(s)

KRONENBERG ET AL.

Examiner

Nguyen N Hanh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 15 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 22-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30,33 and 43 is/are allowed.
- 6) ☒ Claim(s) 22-29,31,32 and 34-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Remarks*

1. In view of amendment, the Examiner withdraws the objections to the drawings, the specification, the rejection under 35 U.S.C. 112, first paragraph to claims 29, 37-40 and the rejection under 35 U.S.C. 112, second paragraph to claims 31 and 43.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 22,23,29,31,32,34,37,41,42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted prior art in view of Eheim (22 64 493).

Regarding claim 22, the Applicant's admitted prior art show an electric motor having a stator and a rotor, with the rotor having at least one permanent magnet and one rotor shaft and with the stator having at least two coils which produce a rotating magnetic field when alternating currents flow through said two coils, by which the rotor is drivable, and the rotor shaft is mounted radially and axially (Page 1, lines 10-18 in the specification).

The Applicant's admitted prior art fails to show an electric motor wherein the rotor (4) is mounted by a first elastic thrust ring and a second elastic thrust ring (1a, 1b), with the first thrust ring (1a) being arranged axially on a first side of the rotor (4) and the

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second thrust ring (16) being arranged axially on a second side of the rotor to mount the rotor axially in a floating manner.

However, Eheim discloses an electric motor wherein the rotor (4) is mounted by a first elastic thrust ring and a second elastic thrust ring (30), with the first thrust ring (30) being arranged axially on a first side of the rotor (4) and the second thrust ring (30) being arranged axially on a second side of the rotor to mount the rotor axially in a floating manner (because of the axial gap between the shaft and the thrust ring at both ends of the shaft as shown in Fig. 1) for the purpose of supporting thrust bearing.

Since the Applicant's admitted prior art and Eheim are in the same field of endeavor, the purpose disclosed by Eheim would have been recognized in the pertinent art of the applicant's admitted prior art.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the Applicant's admitted prior art by having the rotor (4) mounted by a first elastic thrust ring and a second elastic thrust ring (1a, 1b), with the first thrust ring (1a) being arranged axially on a first side of the rotor (4) and the second thrust ring (16) being arranged axially on a second side of the rotor to mount the rotor axially in a floating manner as taught by Eheim for the purpose of supporting thrust bearing.

Regarding claim 23, Eheim also discloses an electric motor wherein the rotor (4) is mounted by a first thrust ring (30) arranged axially on one side of the rotor (4), wherein a second thrust ring (30) is arranged on another side of the rotor (4), and, depending on position of said rotor, the rotor (4) either loads the first or second elastic

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thrust ring (1a, 1b) continuously (when the rotor shaft is in a vertical position), or loads the first and second thrust ring (1a, 1b) alternately (when the rotor shaft is in a horizontal position).

Regarding claim 29, Eheim also discloses the electric motor wherein at least the first thrust ring (elastic bearing 30) is arranged in a recess (the space which accommodate elastic bearing 30) in the stator for the purpose of creating a radial and axial bearing.

Regarding claim 31, Eheim also shows the recess and an indentation in the stator (the space which accommodate elastic bearing 30) and in the rotor (the space to accommodate the shaft) is in the form of truncated cones for the purpose of accommodating the elastic ring and the shaft.

Regarding claim 32, Eheim also discloses the electric motor wherein the stator has an axial stop (the rim at the bottom end of the stator as shown in Fig. 1), and wherein by said axial stop an axial movement of the rotor shaft is limitable by said axial stop by absorbing the pressing on forces by the axial stop when additional components are mounted on the rotor shaft.

Regarding claim 34, Eheim also shows the electric motor wherein the rotor shaft is polished in a radial bearing region (inherent because the friction between the shaft and the bearing 30 should be minimum) for the purpose of improving efficiency of the motor.

Regarding claim 37, Eheim also shows the electric motor wherein the stator is in the form of winding body (6,8) for the purpose of housing the winding.

Regarding claim 41, Eheim also shows the electric motor wherein the impeller (37 in Fig. 1) is mounted on the rotor shaft. Eheim fails to show impeller (37) is a fan impeller. However, the limitation "fan impeller" is intended use, little patentable weight is given.

Regarding claim 42, Eheim also shows the electric motor wherein the impeller is pressed into the shaft.

3. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted prior art in view of Eheim and further in view of Siemens (8624050).

Regarding claim 24, the Applicant's admitted prior art and Eheim show all limitations of the claimed invention except showing the electric motor wherein the thrust rings comprise a rubber-like plastic matrix to one side of which microfibers are applied.

However, Siemens discloses the electric motor wherein the thrust ring comprise a plastic ring (2 in Fig. 1) and one elastic damping layer (1 of an elastomeric material) is applied to one side for the purpose of reducing vibration.

Since the Applicant's admitted prior art, Eheim and Siemens are in the same field of endeavor, the purpose disclosed by Siemens would have been recognized in the pertinent art of the Applicant's admitted prior art and Eheim.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the Applicant's admitted prior art and Eheim by making a plastic ring with a rubber-like plastic to one side and apply microfibers on it



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(since microfiber is a known elastomeric material) to form an elastic damping layer as taught by Siemens for the purpose of reducing vibration.

Regarding claim 25 and 26, Siemens also show the electric motor wherein the side with the microfibers (elastic damping layer) faces the rotor and the microfibers are distributed stochastically (inherent) for the purpose of reducing vibration.

4. Claims 27,28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted prior art in view of Eheim (22 64 493) and further in view of Blaettner et al.

Regarding claims 27 and 28, the Applicant's admitted prior art and Eheim disclose the invention except for showing the electric motor wherein a lubricant is provided in the thrust rings (1, 1a, 1b) and the lubricant in the thrust rings (1, 1a, 1b) has low viscosity.

However, Blaettner et al. show the electric motor wherein a lubricant is provided in the thrust rings (provided by oil slinger 160 facing thrust ring 162) and the oil inherently has low viscosity so that it can migrate back and forth between the oil slinger and the bearing 60 (Col. 17, lines 34-51) for the purpose of reducing friction.

Since the Applicant's admitted prior art, Eheim and Blaettner et al. are in the same field of endeavor, the purpose disclosed by Blaetter et al. would have been recognized in the pertinent art of the Applicant's admitted prior art and Eheim.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the applicant's Admitted prior art and Eheim

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by providing lubricant with low viscosity to the thrush rings as taught by Blaetter et al. for the purpose of reducing friction.

5. Claims 35,36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's Admitted prior art in view of Eheim and further in view of Ikegami et al.

Regarding claim 35, the Applicant's admitted prior art and Eheim show all limitations of the claimed invention except showing the electric motor wherein the rotor has a permanent magnet embedded in a magnet mounting.

However, Ikegami et al. disclose the electric motor wherein the rotor has a permanent magnet (113) embedded in a magnet mounting (114a and 114b) for the purpose of creating magnetic flux.

Since the Applicant's admitted prior art, Eheim and Ikegami et al. are in the same field of endeavor, the purpose disclosed by Ikegami et al. would have been recognized in the pertinent art of the Applicant's admitted prior art and Eheim.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the Applicant's admitted prior art and Eheim by forming a rotor with a permanent magnet embedded in a magnet mounting as taught by Ikegami et al. for the purpose of creating magnetic flux.

Regarding claim 36, Ikegami et al. also show the electric motor wherein said electric motor has a rotationally symmetrical magnet (disk shape) which is rigidly connected to the rotor shaft for the purpose of creating magnetic flux.

6. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted prior art in view of Eheim and further in view of Ikegami et al.



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Regarding claim 38, the Applicant's admitted prior art and Eheim show all limitations of the claimed invention except showing the electric motor wherein at least two crossing coils are mounted on the winding body.

However, Ikegami et al. disclose the electric motor comprise a three-phase six-pole stator (Col. 3, line 47-48) which is interpreted by examiner as having at least two crossing coils for the purpose of creating magnetic flux.

Since the Applicant's admitted prior art, Eheim and Ikegami et al. are in the same field of endeavor, the purpose disclosed by Ikegami et al. would have been recognized in the pertinent art of the Applicant's admitted prior art and Eheim.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the applicant's admitted prior art and Eheim by forming a rotor with a permanent magnet embedded in a magnet mounting as taught by Ikegami et al. for the purpose of creating magnetic flux.

7. Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted prior art in view of Eheim and Ikegami et al. and further in view of Steiner.

Regarding claim 39, the electric motor disclosed by Applicant's admitted prior art, modified by Eheim and Ikegami et al. shows all limitations of the claimed invention except for showing the electric motor wherein said the alternating currents in individual of said coils have a phase separation which corresponds to an angle of orientation of the individual coils with respect to one another.

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However, Steiner disclose the electric motor wherein said the alternating currents in individual of said coils have a phase separation which corresponds to an angle of orientation of the individual coils with respect to one another (Col. 14, lines 42-50) for the purpose of improving manufacturing process.

Since the Applicant's admitted prior art, Eheim, Ikegami et al. and Steiner are in the same field of endeavor, the purpose disclosed by Steiner would have been recognized in the pertinent art of the Applicant's admitted prior art, Eheim and Ikegami et al..

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the applicant's admitted prior art, Eheim and Ikegami et al. by forming a stator with the coils wherein said the alternating currents in individual of said coils have a phase separation which corresponds to an angle of orientation of the individual coils with respect to one another as taught by Steiner for the purpose of improving manufacturing process.

Regarding claim 40, Ikegami et al. also show the electric motor wherein the alternating current is sinusoidal (inherent when alternating current is used in motor) for the purpose of creating magnetic flux.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 22-26,29,38,41 and 42 have been considered but are moot in view of the new ground(s) of rejection. It is noted that the structure disclosed by Eheim has two axial gap at both ends of shaft, thus the two

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elastic thrust ring mount the rotor axially in a floating manner (as recited in claim 22) because the rotor can float in axial direction when the machine is in horizontal position.

***Allowable Subject Matter***

9. Claims 30,33 and 43 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: the record of prior art does not show an electrical machine with elastic rings for bearing purpose wherein the rotor of the machine has an indentation in form of truncated cones to accommodate the ring and a capillary gap for holding lubricant is provided between the rotor and the stator of the machine.

***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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***Information on How to Contact USPTO***

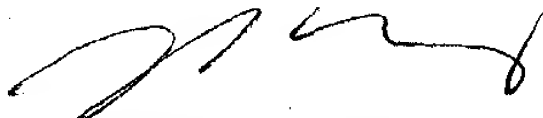
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (703)305-3466. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703)308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1782.

HNN

December 23, 2002

  
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